

WHAT IS CLAIMED IS:

1. A method of forming a tunnel oxide film in a semiconductor device, comprising the steps of:
  - (a) forming a first oxide film on a semiconductor substrate, and then
  - 5 forming a photo resist pattern exposing the first oxide film in a memory cell area and a low voltage transistor area;
  - (b) removing a predetermined thickness of the exposed first oxide film and the photo resist pattern sequentially; and
  - (c) removing the remaining first oxide film completely and then
  - 10 forming a second oxide film on a whole surface.
2. The method of claim 1, wherein the first oxide film is a pure oxide film, and it is grown at a temperature in the range of 750°C to 850°C to have a thickness in the range of 350 Å to 600 Å.

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3. The method of claim 1, wherein the step (b) further comprises the steps of:
  - removing a predetermined thickness of the first oxide film by using a 300:1 BOE for a period in the range of 1,730seconds to 1,735seconds;
  - 20 removing the photo resist pattern by using a H<sub>2</sub>SO<sub>4</sub> solution; and
  - performing a cleaning process using an SC-1 solution to remove pollutants such as organic components or particles.

4. The method of claim 1, wherein a thickness of the first oxide film remaining after the step (b) is in the range of 17 Å to 23 Å.

5. The method of claim 1, wherein the first oxide film is removed by performing a cleaning process using a 50:1 HF solution in the step (c).